

[10 cont.]

539 X'amabe X'amabe X'amabe X'amabe God, God, God, God

782 /gami tara ai Water we can drink!

[482] [11] In the waterless wilderness of the palm bush and

291 the Otjimpolo Veld death from thirst often enough overtakes
731 even the Bushmen, accustomed as they are to privation. They[488] do not deny that at times they are forced to leave the old and
[758] the sick behind in the wilderness. But such an occurrence stays
in the people's memory for a long time as a serious misfortune.
Anyone who is acquainted with the Bushmen's love of children
and veneration of parents and old people can understand what it
means to them to be forced to leave behind one of their own.271 One must have experienced personally the feeling that over-
comes one when due to thirst and heat the body no longer gives
off perspiration, the dry forehead feels burning hot, and a
slight chill passes through the body, in order to understand this
song of joy which seems so naïve, whose content is: We can
drink again!

539 3. Short and fervent prayer at the beginning of a

782 journey:

[484] X'amaba !Khu gai teve God, let me travel well.[755] 4. Choral prayer for a sick person: When someone is
gravely ill, the relatives sing in chorus, while the doctor per-
forms his ceremonies.X'amaba !khoé-wa #khai kháira téve God, let our people rise
again.789 5. Not a real prayer, but rather a formula of exorcism
is said to oneself when meeting a stranger regarded as evil:Tshuai Kwewa /Nawa!821 They do not know anything to say about the sun (sorésa).
The moon (X'awa) dies every month and wakes up again.753 Illnesses are sent by X'amaba. He sends them to those
776 persons with whom he is angry. Other spirits have no role in this,
and there is no spirit of sickness.776 There is a host of little spirits, the /ga /ga hú, in the
bush. They play tricks.775 A human being has only one soul, !gaoba. This soul
goes to heaven after death. (!nanu-aiba, rain house?) The
house of X'amaba (#khauba) is there. Only the doctors know[756] what it looks like up there. They speak with X'amaba.

The Grose

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the people who crowded her in, and, clambering out of the jeep, ran back to retrieve it. It was an enormous bundle, but she dragged it to the jeep and tried to stuff it in, paying no attention at all to the others who insisted loudly that there was no room. She finally got it in, climbed in after it, and sat on it to squash it down. She completely ignored a lofty glance from her husband, a reproach for her impoliteness, and searched through her clothing for her pipe and her flint, with which she struck a light and smoked. In a sense, she and Toma were mismated, for the idea that she would have fewer things, less conveniences than someone else seemed to haunt Tu, while Toma seemed possessed with the fear that he would have more. When Tu took, Toma gave away.

We drove down the plain, leaving the nests in the forest behind ourselves forever, toward the eastern horizon, which was blue and shimmering in the heat of the late afternoon. We were too crowded and too jostled to talk much, everyone preferring to crouch quietly and ignore discomfort, except Tu, higher than the others on her bag of grass, who seemed very cheerful indeed and talked on and on. We stopped several times along the way—in fact, we had hardly started before Tu plucked at John's shoulder and asked him to wait. She had seen a gemsbok cucumber growing on a vine in the grass and wanted to pick it, so John stopped the jeep. Tu climbed out and found several, which she tossed in, letting them roll about freely on the floor. We were about to start again when Dikai also saw some cucumbers and we had to wait while she gathered those, and no sooner had we driven on again, the little cucumbers rolling against our ankles and prickling us with their spines, than Little Dabe vomited and we had to wait a third time while Dikai cleaned him up with a tuft of grass.

Toma sighed. Men plan to spend several days traveling

● 487 with their families on trips that would take them only hours if they were traveling alone. We stopped a fourth time in the middle of the vast plain, for John had seen a shattered ostrich egg on the ground and wanted to let the Bushmen gather it to make beads. Toma motioned him to drive on. The egg, he thought, belonged to a man named Crooked Kwi, who had left it there one season and would return for it someday soon. Toma had heard of this event from Crooked Kwi himself when they had seen each other last, and, observing that the shell fragments were gathered into a pile, he supposed that this must be the very egg that Crooked Kwi had mentioned. It was just where Crooked Kwi had said it would be, too.

361 We left the eggshells behind in the immense plain and went on our way toward the eastern rim. When we got there we found the rest of Gao Feet's family—his older and uglier first wife, his old mother-in-law, his first wife's daughter, and his daughter's husband, none other than Crooked Kwi himself. These people were living in a most beautiful glade of thorn bushes that were growing thickly together among tall trees, their branches arching just over people's heads. A fire had cleared out all the grass and leaves, leaving just the brown earth and the gray lace of branches; the people were brown and their things were brown and white and the ashes of their fires were gray in the little hollows on the ground, for these people, too, had built no shelters. Tu got right out of the [532] jeep and went straight to a fire, where she began to crack some of her tsi nuts between a stick and a stone.

608 The rest of us exchanged greetings and the old woman,
551 Dikai's mother, embraced me. "You are my daughter. I bore you," she said. When I had first come to Gautscha Pan I had been named Dikai for her daughter, and among the Kung one is strongly identified with the person one is named for; as the

The Grove

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begun to give each other presents of tsi. Bushmen feel a great⁴³¹ need to give and receive food, perhaps to cement relationships with each other, perhaps to prove and strengthen their dependence upon each other; because the opportunity to do this does not occur unless huge quantities of food are at hand, Bushmen always exchange presents of the foods that come in huge quantities, these being the meat of game antelope, tsi nuts, and the nuts of the mangetti trees, which at certain seasons are scattered abundantly all through the mangetti forests.

As we waited by the jeep Dikai gave a huge sack of tsi to her mother. Her mother gave another sack to Gao Feet's first wife, and Gao Feet gave a sack to Dikai. Later, during the days that followed, the tsi was distributed again, this time in smaller quantities, small piles or small bagfuls, after that in handfuls, and, last, in very small quantities of cooked tsi which people would share as they were eating. All this was very hard to trace, especially for us while we waited and loaded the jeep, for the large sacks were not handed around but rather were tossed into the jeep one on top of the other while the transactions went on vocally.

There is a further complicating factor in food distribution.⁴³²
 The owner of the bag which is full of tsi or mangettis is the⁴³¹ owner of all the nuts inside, no matter who gathered the nuts, just as the owner of an arrow, whether man or woman, is the owner of the largest share of the buck killed by the arrow, no matter who shot the buck. This is a practical arrangement, since all three of these important foods, oftener than not, are very far from the waterholes where the bands would be living. Usually, Bushmen have to travel for several days over water⁴⁸⁴ less, scorching veld to reach tsi fields or mangetti forests, then⁴⁸² have to carry their heavy loads back again to water. These⁴⁸² journeys are too hard for young children, old people, cripples,⁴³¹

484 women who are pregnant, or people who are ill. In fact, the
 482 long journeys for the two kinds of nuts are undertaken only
 432 by strong adults, who therefore must gather for all those who
 431 stay behind. The system of Bushmen in these matters en-
 sures that everybody gets enough. As it turned out, that after-
 noon we found that both Tu and Lazy Kwi had filled bags be-
 longing to Lazy Kwi's wife, the bag that Lazy Kwi filled being
 the only one he had with him, and in this way his wife, who
 wasn't there and who so far knew nothing of her windfall,
 owned two bags of food which she would probably share
 with Lazy Kwi, who actually, that day, owned none.

At last, when many bags had changed hands, when every-
 thing movable including Tu's bag of grass—which she had
 emptied, tying the grass into a bundle with a strip of bark in
 order to free the bag for tsi—had been loaded into the jeep,
 484 the people began to climb in and the jeep sank down on its
 springs, groaning dangerously as each person got on it and
 found a place to sit. When finally everyone was on and the
 springs still had not broken we drove away with extreme
 caution, barely moving when we came to bumps, with Toma
 and Gao Feet sitting on the hood and pointing the way to
 Nama.

522 As we crept along Toma told a lion story concerning some
 Bantu people at Kai Kai who tried to rid themselves of three
 lions that were attacking their cattle. As his story was ex-
 tremely funny, his voice was often drowned out by the laugh-
 ter of the others. He spoke so fast we could not understand
 him, but his wife laughed until she cried. Toma told the fun-
 niest parts of the story two or three times.

271 Just before we got to Nama, when the shadows of the
 bushes reached far over the veld and the western sky was
 blood red, thick with smoke, we reached a tiny waterhole



CHAPTER THIRTEEN

Short Kwi the Hunter

THERE were about forty people who had moved in beside us⁶²¹ at our camp by Nama Pan, having settled overnight into⁵⁷⁴ seven werfs, each concealed from the others in the privacy of the grass and forming a community that was superimposed on ours, for the werfs, each a little clearing containing several grass nests or several scherms symbolized by sticks thrust in the ground, surrounded us on all sides and life went on as if we weren't there. People walked back and forth through our camp on their way to patches of veld food or to the water pan, and soon little paths appeared which we had not made.

Mostly, the people were Bushmen from Gam who had left⁴⁸⁴ there right after we did and had walked along after us, taking⁵⁷⁴ their time, sleeping one night on the way. They had brought all their children and old people, all their belongings, and evidently planned to stay. Even the Chuana woman had come, riding her donkey, followed on foot by two of her Bushman servants, and she had made herself a camp quite far away from us to prevent the donkey from annoying us with its brays.

II: Marshall E-5 (1950-1955) 1958

FX10 Bushmen FX10
Kung



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WOMEN OF WESST gather children and possessions in preparation for march

to a new campsite. A band can travel about ten miles a day, gathering food

as it goes. The !Kung move in annual patterns: staying near waterholes in

dry winter, visiting *mangetti* forests in moist summer, and *tsi* areas in fall.

[P. 39]

312 T^hEN permanent waterholes, as we have seen, occur in two areas—around the ring of pans in the east center of *Nyae Nyae*, and along the eastern border. To the west, beyond the limit of the pans, there is no water in the long dry seasons. Around each permanent waterhole, the *veldkos* near enough to be gathered in a day are considered by the !Kung to be an integral part of that waterhole. This means that such a waterhole includes both the water itself and all the *veldkos* within a circle with a radius of some four miles. This area might be called a certain waterhole's "district," taking its name from the waterhole. When a man mentions a waterhole, he usually has such a district in mind.

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● 484 Yet neither the *veldkos* in these districts nor the *veldkos* scattered between the districts, nor the game, which wanders, constitute the main

[p. 59]

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food resources of *Nyae Nyae*. Instead, these are the *mangetti* and *tsi* nuts. Both are found only far from permanent water. Distance becomes more significant when one thinks not only of miles—but of time, footsteps, heat and carrying capacity. From the nearest western water, it is about twenty miles to a *mangetti* forest. The distance between *tsi* and the closest water is about seven miles. The people calculate their marching ability at about ten miles a day, with women and children, although men can make forty if necessary. They gather food as they travel, for a day of traveling is just like any other day, with children and old people to be provided for.

[48]

224 I N order to exploit the environment successfully, with their limited technological equipment, the !Kung must move from place to place. The calendar of their movements is revealing. In winter, the people are forced to remain near the waterholes,

[p. 63]

LORNA MARSHALL

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The poisoned arrows of the Bushmen are as deadly 626
to man as to game and they are always at hand. A mere nick and a speck of 721
poison in the bloodstream can be fatal. There are no known antidotes. 412

As skilled trackers of game, Bushmen develop their powers of visual ob- 151
servation and train their visual memories to such a high degree that they
know everyone's footprint as well as his face. This is another deterrent, for
no one could steal veldkos without leaving his marks and having his identity
detected. Theoretically, in !Kung society the thief may rightfully be killed by 185
the person or the band from whom he has stolen, but he may fight back, and
relatives could also become involved and the fighting would spread. In the
opinion of the !Kung, situations likely to engender hostility are assiduously to
be avoided, to say nothing of actual fighting. Breaches of this intention are
very rare.

Life throughout the seasons is planned around the veldkos gathering. 221
The people know at what seasons the various veldkos will ripen and about 222
how much each patch will yield if the rains have been good or if they have 182
been poor. The !Kung are not, according to our way of thinking, exactly con-
servation-minded, but they do plan to consume their veldkos in advantageous
order. They eat the perishable short-seasoned leaves and the few fruits as 262
soon as they ripen. They leave until the dry season is advanced certain beds
of roots and tubers that are edible the year around if they remain in the
ground.

The headman of the band has the authority and the duty, according to 622
!Kung social regulations, to plan the band's movements, to say to which 222
veldkos area they will go and when, and, if the band separates temporarily
into segments, to know where each segment is going and, in general, what
veldkos it will consume. It is a matter of life and death to plan and control
as best they can and not to travel for days, counting on food and finding that
one segment of the band has eaten it all, unbeknown to the others.

Each type of veldkos and each area presents its problems of logistics, 222
water being the determining factor in the plans, for usually water and 312
veldkos are not in the same place. During the big rains and for several weeks 229
after, the pans and vleys become shallow ponds and small, temporary water
holes are filled. It is the time of relative plenty. The people find sufficient
water to enable them to move about with comparative freedom in their coun-
try, wherever there is something to gather. When the dry season sets in, 415
the problem is to carry enough water from the water hole to the veldkos area 237
in ostrich egg shell containers and to carry enough veldkos back to the water
hole. It is a ceaseless labor.

The distances the !Kung travel between water and fertile areas in these 847
gathering trips vary from a few miles to twenty or thirty. The people do not
manage greater distances except in the rainy season, when they go as far as
seventy-five miles to a mangetti forest.

When the people go to gather mangetti or tsf, the men always ac-

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On the Move A Bushman hangs his possessions on a carrying stick and thrusts his assegai under the stick in back to distribute the weight onto both shoulders.

222 *when the people go to gather mangettis or tsf, the men always ac-*
482 company the women and help to gather and to carry the heavy loads—as much as they possibly can—back to the water hole.

Though the men help, especially with tsf and mangettis, gathering and digging are the work of women and the work that takes up the greater portion of their energy and time throughout their lives. Their digging implement is a sharpened, unweighted stick about three feet long. When we were living with the Gautscha bands at the Gautscha water hole in the dry season, the women went to gather every day or every second or third day, depending on the distance and on how much food they could carry back. They would plan which patch or fertile area to go to and start out in small groups, some to one place, some to another. They would walk five or ten or fifteen miles to their destination and then pick berries or dig roots, which may lie two feet or more under the ground, until the mid-afternoon, and then start back to the werf (campsite) at the water hole. They carry their infants tied to them, small children on their shoulders, and the loads of veldkos in the bulges of their karosses (skin capes). When they near the werf, they pick up two or three logs for the night fires.

The veldkos that each woman gathers belongs to her and with it she feeds her own family, sharing with whatever relative or friend she wishes. Custom does not require her to share it in a systematic way with others as meat must be shared. She cooks her veldkos in the coals and hot ashes, 252 pounds fibrous roots and hard berries in her mortar, and serves the food to her family as a family meal, usually in the evening. During the day, however, people may cook and eat little snacks at odd times.

222 Although there are numerous kinds of veldkos, we must not give the
433 impression that there is a great abundance. In fact, the opposite is true. Food
231 is scarce all over the arid Kalahari, where drought is the scourge on all—the cattle raisers, the dry farmers, and the gatherers of the wild foods.

128 There has been much intermarriage in the Nyae Nyae region. Families
166 therefore may have close relatives—with whom they have the right to live—
1582

224 meat to the owners of the territory should they happen to encounter them,
 [43] but this is a gift, not an obligatory tribute. The vastness and emptiness of
 [182] the country allow this freedom in hunting rights and the wandering nature
 of the game requires that the hunters, if they are to succeed at all, be free
 to look for game wherever they can find it.

222 The !Kung eagerly pick up tortoises, certain kinds of lizards, snakes,
 ostrich eggs, and grasshoppers, and they relish termites when these insects
 [262] swarm out in nuptial flight. These items provide incidental delicacies and
 gathering them is like the gathering of veldkos. The person who gathers
 224 them may keep them for himself and his own family. Men gladly shoot small
 223 animals and birds if they happen upon them—wart hogs, duikers, other small
 antelope, porcupines, badgers, pythons, spring hares, ostriches, paouws,
 guinea fowl, red-winged partridges, occasional migrating geese, and other
 birds. They may keep them for their own families. They do not, however,
 devote their hunting time to the smaller animal creatures if they find fresh
 spoor of the larger ones. Hunting the big game animals that feed a whole
 band is the work of a man's prime and is incumbent on him.

224 Hunting parties usually consist of from two to four or five men. A man
 cannot hunt-effectively alone in this country. Several parties hunting in
 different directions are more advantageous than one larger party. Any man
 may organize a hunting party, with relatives and friends from his own band
 or from neighboring bands—men he likes to hunt with. No one is formally
 a leader; the men talk and plan together and are likely to fall in with the
 suggestions of the one whom they consider the best hunter. Participation in
 any given hunting party is voluntary. What !Kung society urges is that the
 [46] hunters hunt; it does not restrict the ways and means. The force of public
 [626] opinion upon men not to sit in the werf, not to be lazy but to do their share,
 is tremendous.

The game the !Kung hunt deliberately and purposefully are the several
 big antelopes found in the region: eland, kudu, gemsbok, wildebeest,
 hartebeest, springbok. They also hunt the more rarely seen buffalo and oc-
 casionally manage to shoot a giraffe. Although there is this considerable
 variety of kind, there is not a great abundance of game. The herds are small
 and the hunts long and hard.* The antelope, because they can go for long
 periods without drinking, move and drift about anywhere in the vast mono-
 • [609] nous veld and are very difficult to find. Hunters often search for days, cover-
 ing scores of miles, before finding spoor fresh enough to follow, and they may
 [411] follow it for days before catching up with the animal. Their little arrows kill
 by poison rather than by piercing deeply, and, when an animal is shot, if it
 is big, it may wander for three or four more days until it dies of the poison.
 [36] Smaller animals succumb in a shorter time. The hunters must track the
 animal and find it before the lions, leopards, hyenas, jackals, or vultures de-
 vorer it.

Day Length

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The Dobe area is situated at 20° south latitude and there is an annual variation in day length at this latitude of slightly less than two hours. In mid-winter (June-July) the sun rose about 7:00 a.m. and set at 6:00 p.m. In mid-summer the sun rose about 6:00 a.m. and set at 7:00 p.m. This seasonal variation plus a corresponding variation in temperature had a noticeable effect on the activity patterns of the Bushmen. During the winter they arose late and stayed around their camp fires until mid-morning. They concentrated their subsistence activities in the warmer middle hours of the day (10:00 a.m.-5:00 p.m.). On the other hand, during the hot summer days they adopted a "crepuscular" activity pattern. They arose at 6:00 a.m. and worked until 10:00 a.m. Whenever possible they spent the hottest mid-day hours resting in the shade. There was a second period of activity during the cooler hours of the evening (5:00-7:30 p.m.).

- [134] When long hikes were undertaken the Bushmen had no alternative but to travel during the hottest hours of the day. Even during the hot dry season (September-October) they were never observed to hunt or travel at night.

16: Lee E-5 (1963-1965) 1966 FX10 Bushmen FX10
!Kung

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3123. Average quantity of water provided to each
adult per 24 hour period; 85 oz.
4. Average quantity of water provided to each
child per 24 hour period; 43 oz.

Since the amount of water loss through sweat varies directly with the air temperature, an individual would require more than two eggs-full of water during the summer when the mean daily maximum temperature is 100°F. During the winter, when the mean daily maximum is 85°F, two eggs-full appear to be sufficient.

Similarly, the amount of water loss through sweat varies directly with the intensity of activity, so that an individual would require more water after a day of hard hiking in the sun than he would after a day of comparative inactivity in the shade of the nut forests.

For the present case (winter nut collecting trips) the two-egg figures will be taken as an average.

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For every day of residence away from the permanent water, an individual must carry with him, 72 ounces of water. Therefore a person on a three day collecting trip must carry out four eggshells of water: one for the afternoon of the first day, two for the second day and one for the morning of the third day. Children under 10 years of age can manage on one egg shell of water per full day. Therefore, if a man and wife

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484 with three young children go to the nuts they must carry a
222 minimum of $4+4+2+2+2 = 14$ ostrich egg shells filled with water,
four for each adult and two for each child. However, most
[426] women own only about six shells. By borrowing shells from
other camp members they can bring the total up to the number
required for a three day trip.

The antelope stomach sacs offer an increase in water-carrying capacity. A fresh sac will hold up to one gallon (U.S.), i.e. 128 ounces of water, which is the equivalent of $3-1/2$ egg shells. Therefore, if a family of five owns two stomach sacs containing 256 ounces of water, this will provide them with one day's supply of water. The 14 egg shells hold three day's supply of water, so that, with two stomach sacs and 14 shells, the family of five can stay an extra day (three nights instead of two) away from the permanent waterhole.

Four days is the upper limit on the time that Bushmen can spend away from a waterhole without a supplement of water from plant sources. There are three reasons for setting the upper limit at four days. First, there is a limit to the number of containers available. Stomach sacs are very fragile and have a short useful life. As they rip they are sewn and this sewing makes their capacity smaller and smaller, so that after six months or so they are discarded. Ostrich egg shells, on the other hand, are much more durable

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and may stay in constant use for years. It is curious therefore that each family possesses less than 10 shells and must borrow shells in order to make these hiking trips to the nuts. The limited number of containers is probably the reason why members of a camp go out to the nuts in shifts. When one family returns, the camp's ostrich egg shells are pooled, and then another family may go out.

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A second limitation is the weight of water that can be carried. The 756 ounces of water required for four days at the nut forest weigh 47 lbs. Each empty ostrich egg shell weighs eight ounces; so that the 14 shells themselves weigh

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an additional seven lbs. Furthermore it is necessary for the parents to carry the younger children on their shoulders.

So, in effect, the parents must walk out to the nut forests fully loaded with water and children and also return fully loaded with nuts and children. On the return trip the weight of the water is replaced by an equivalent weight of collected nuts.

The third limitation is set by the volume that the ostrich egg shells occupy in the carrying space of the kaross. The volume occupied by 14 ostrich egg shells is roughly equivalent to the volume occupied by 14 quart-sized milk bottles. When the time comes for the trip home the adults must pack into each kaross 20 lbs. of nuts, as well as the empty ostrich egg

312 shells; this makes for a very bulky and unwieldy parcel. The
• 484 stomach sacs, by contrast to the egg shells, have the distinct
222 advantage of being weightless and occupying no space on the
return trip, since when they are empty they dry and shrivel
up.

221 The reader can now appreciate the complex logistics of
222 Bushman subsistence activities during the late winter dry
312 season. In view of the difficulty of collecting mongongo nuts
during this season, it is not surprising that the people turn
to an eclectic diet of roots, bulbs, and gums that are still
available in the vicinity of permanent water.

222 Several variations in tactics were observed among the
484 Dobe area Bushmen. One such variation was to leave the older
855 children behind in the care of relatives while the parents
312 made the long trips to the nut forests. By leaving behind
482 two children at the main camp, the parents could effect
savings of 30% in the weight of water that had to be carried
out on a four day trip.

222 Another variation observed was the two-day-one-night
484 overnight hike. Such a trip lasted only 36 hours and required
312 only three ostrich egg shells of water per adult. By using
[482] this tactic, groups of ten or more people could make a rapid
lightly loaded trip to the nut forests and return the following
day heavily loaded with nuts. This was a difficult operation

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because it entailed two consecutive days of hardhiking on short water rations. The object of such a trip was to get to the nuts and back again as quickly as possible, before the physiological deficit of water was allowed to reduce efficiency.

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The general object of the winter nutting trips was to remain at the nut forests just long enough to eat a really substantial quantity of nuts (about 400 nuts per adult).

This marathon meal starts the moment that the Bushmen arrive at the nut camps and continues throughout their stay. It is interrupted for short periods when the Bushmen go out to collect nuts in the vicinity of their temporary camp. There is a Bushman saying that aptly applies to this situation: "It is better to carry food home in your stomach than on your back."

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Hunting rarely occurs at these overnight camps. The efforts of men and women alike are directed to eating as many nuts as possible in a short time.

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The most important variation in the late winter and spring subsistence tactics centers on the use of Pockea monroi as a source of water. This will be discussed below.

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Early Spring

August is the last month of winter. The last of the freezing nights occurs at the first of the month and these are followed by warmer nights in the 40's and 50's and daily

312 The net effect of this effort is that an individual must
824 drink much more than the minimum daily requirement of 72
222 ounces of water. In fact, men who were living on Fockea
roots, were observed to dig out between 15 and 20 of the roots
per day. The quantity of water provided by these roots is
estimated at 150-300 ounces, part of which went to provide
water for the children of the camp.

222 A description of one Fockea trip, in which the author
484 participated, will serve to illustrate some of the difficulties
312 of living away from standing water.

[123] This trip began on 6 November and ended on 16 November,
1964. The group consisted of 12 Bushmen (plus the author);
there were three men, four women, and five children. One of
the young women gave birth during her stay so the returning
group consisted of 13 Bushmen.

November 6 - This group (minus one of the men who came out
the following day) set out from the Dobe waterhole at 10:00
[103] a.m. They spent the day walking to a nut forest named
!wi/wama which was situated eleven miles west of Dobe. The
original plan was to remain there for five days.

[481] The pace was leisurely to suit the three older children
[855] (ages 12, 8, 6 respectively) who went on foot and the young
[843] woman who was in the terminal month of her pregnancy. On the
way we stopped at intervals to eat seven different species of

16: Lee E-5 (1963-1965) 1966 FX10 Bushmen FX10
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food plants and to rest in the shade. Towards evening we reached a patch of Fockea roots and spent an hour digging and eating them. Six roots were divided among our group of 12 people. At seven p.m. we made camp in the mongongo nut forests at !wi/wama. Within minutes of our arrival the four women had collected and were cracking mongongo nuts.

Before leaving Dobe, the Bushmen had filled 15 containers with water:

1 kudu stomach sac	4 quarts
2 enamel buckets	4 quarts
12 ostrich egg shells	13-1/2 quarts
Total water carried:	21-1/2 quarts (= c. 700 oz. or water)

On the outward journey, the 12 of us drank four of the ostrich egg shells which had been filled at the Dobe well, plus an estimated two quarts of water from Fockea roots. During the evening, no one drank water until just before bedtime when a further three quarts of water were divided out. Therefore, of the estimated total of 700 ounces of well water, 224 ounces (30%) had been consumed on the first day's hike. It is not known how long the remainder lasted because the author left the camp at the end of the second day.

November 7 - The group woke up at 5:40 a.m. The women were not satisfied with the location of the camp so we packed up and hiked west for another half mile to make camp at a new

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• 484 location closer to the nuts. By 7:00 a.m. this camp had been
312 deserted. The women and their children had gone to collect
[462] nuts and the men had set out to find Fockea roots and to hunt
[224] along the way. The men carried no water with them on the
hunt. The author accompanied the men.

We walked south for several miles looking for fresh animal tracks and for patches of Fockea plants. We passed through two molapos where the Fockea plants were likely to exist, but to our disappointment we found none. It was 10:00 a.m. before we dug out the first Fockea of the day.
[132] By this time the morning coolness had disappeared and we had to walk and dig in the sun with shade temperatures about 100°F. The first Fockea worth digging were found 4-1/2 miles south of our camp at !wi/wama. The roots were the size of a football and weighed about three pounds.

The flesh of Fockea is white and juicy with a spongy granular texture. The juice is milky in color and slightly astringent so that it smarts when accidentally rubbed into small cuts on the hands. There are two methods of extracting the moisture from the root. First, one cuts open the root with a knife and chops off chunks of the flesh inside. This may be eaten directly like watermelon. The disadvantage of this method is that one must swallow about three pounds of roughage in order to extract one pint of moisture; in other

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words, 15 lbs. of roughage per day for the minimum water requirement. This is the most efficient means of processing water from Fockea roots because the digestive system can convert all the moisture that is in the Fockea flesh.

However, the Bushmen say (and I can corroborate this) that a man cannot swallow 15 pounds of pulp per day. The stomach becomes full long before one's thirst is quenched. It is probable also that such a great quantity of roughage would put an intolerable burden on the human digestive system, even of people whose digestive systems are accustomed to processing quantities of fibrous roughage.

The more common way of extracting moisture from the root is to squeeze the juice out by hand. The juice may be squeezed directly into the mouth, or squeezed into a cup and then drunk. This is a less efficient way of extracting moisture because much of the juice remains in the fibers after squeezing. Also some of the juice runs down the arms. It does offer a distinct psychological advantage, however, because one is able to drink the juice and thus satisfy the swallowing reflex which is connected with the neurophysiological sensation of thirst (Ladell 1958). Eating the flesh of Fockea does not satisfy this sensation.

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The men continued to eat and drink Fockea from 10:00 a.m. to 12:20 p.m. Then we started to hunt in a northerly direction.

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224 No game were seen except for a solitary female ostrich. We
[222] tracked her to her nest and collected her clutch of nine
eggs. Each of the eggs was pounded in the sand to separate
the amnion from the inside of the shell. This apparently
kills the embryo inside the egg. These nine eggs were divided
among the three of us. We then dug out four large Fockea
roots intact, and we returned to the camp at 2:30 p.m. after
a hike of nine miles.

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222 The women of the camp had spent the early part of the
462 morning collecting nuts and Fockea and the rest of the day
312 sitting in the shade cracking nuts and squeezing the Fockea
juice. From 2:30 to 4:30 p.m. no one drank any of the water
that had been brought the previous day.

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312 At 4:30 p.m. the third man of the camp arrived from Dobe.
He brought with him one gallon of water in an enamel milk
pail and portions of a dead kudu that he had scavenged from
a carnivore kill on the way.

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123 By this time I was experiencing symptoms of heat dis-
312 tress, (fever, lassitude, inability to swallow) and decided
to return to Dobe, because my continued presence would become
a burden on the camp residents, none of whom, incidentally,
showed any signs of heat discomfort.

One of the men, seeing my condition, offered to accompany
me back to Dobe with his family. We left at sunset and walked

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312 until 8:00 p.m. Before making camp we ate wild oranges along
the way (Strychnos & inosa) but these did not contain much
moisture. We camped at a point halfway between !wi/wama and
Dobe and there shared out the last of the family's drinking
water, which amounted to one quart for four adults and three
children, that is c. 4-1/2 oz. for each of us.

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123 November 8 - The camp awoke at 4:50 a.m. By 5:20 we had
packed and were under way, arriving home without incident
at 7:30 a.m.

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361 November 8-16 - This ended the author's participation in
the Fockea trip. Six members of the original group remained
at !wi/wama eating nuts and drinking the juice of Fockea.
On the eleventh of November there was a heavy fall of rain
at !wi/wama which created a temporary pool of water near their
camp. This enabled them to extend their stay beyond the
original plan of five days.

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844 The same week that the rain fell, the pregnant woman of
the camp gave birth to a baby boy. The group remained at the
nut camp until the mother was strong enough to walk. Then
they broke camp and returned to Dobe on November 16.

Both mother and child appeared to be in fine condition.

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221 The rain of November 11 was the first substantial fall
of the 1964-65 rainy season and initiated the subsistence
activities associated with the late spring (see above). Thus

16: Lee E-5 (1963-1965) 1966 FX10 Bushmen FX10
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transhumant annual round, in which they alternate between their rainy season range and their dry season range.

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The Dobe area !Kung do not undertake long marches of 30-70 miles for the purpose of getting food. This task can be readily fulfilled within a day's walk of their territorial water sources. When such long marches occur, they are invariably for the purposes of visiting, trading, and marital exchanges with relatives at distant camps. As such, these trips should not be confused with the normal routines of subsistence.

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Range Size and Population Density -- By plotting the movements of the various camps in their annual subsistence cycle, the observer can derive a rough estimate of the total land area that is required to support the population of 430 Bushmen. It would be much more difficult to estimate the area necessary to support a single camp, because of the considerable overlap of territories and the frequent visiting between camps. It will be more useful to treat the entire population as a unit. It is estimated that the 800 square miles that lie within a six-mile radius of major water sources are sufficient to support the population for most of the year. Beyond this radius lies a hinterland which is rarely penetrated; perhaps a further 200 square miles of this hinterland is utilized in the course of a single year. Thus the total annual range of the Dobe area Bushmen may be estimated at 1,000 square miles. This calculation sets the effective population

146 ECONOMIC AND POLITICAL LIFE

177 they are no longer self-sufficient. Contact with other peoples has
439 made them familiar with various articles, especially iron and tobacco,
which they now covet very greatly and in order to obtain which they
carry on an extensive system of barter. Even within the band itself
[437] there is a good deal of barter in such things as meat, clothing, veldkos,
and utensils. Berries and roots, for example, are exchanged for
tobacco or beads, skin bags for poisoned arrows, and so on. Trading
visits to other bands are also frequent. But the most common form
of barter is with peoples of other races, especially the Bantu.

439 The IO Kung of Angola, unlike all the other Bushmen, do not go
[184] out into the veld to collect vegetable foods. These are obtained by
[222] barter. The younger men hunt, and trade part of the meat and skins
obtained for the cereals, maize, potatoes, manioc, etc., of the Bantu
among whom they live. Honey and wax are also collected and traded,
sometimes with the Bantu for food and tobacco, now and again to
Europeans for powder and cartridges. Wax is a good article of trade
with Portuguese traders, and the Bushmen are therefore assiduous
in collecting it. Besides foodstuffs they also obtain pots and baskets
from the Bantu, as well as metal wares such as knives, arrow and spear
heads, and beads.¹

The Bushmen of the Okavango swamps, again, trade ostrich egg-
shell beads, ivory, ostrich feathers, skins and horns with the inter-
dwelling Bantu in return for tobacco and dagga, as well as iron and
such iron goods as spear heads, hoes, and knives; while the Namib
Bushmen exchange similar objects with Hottentots and Europeans
for blankets, knives, tobacco, and coffee.²

438 Among the North-Western tribes there is a whole system of trade
relations between different tribes, extending from the Okavango in
the north down almost to the Molopo.³ In this the Naron and the
Auen play the part of intermediaries, obtaining from the tribes further
north the objects they desire, and then bartering them again further
south as occasion arises. Egg-shell beads and tobacco are standard
[436] articles in this trade, in the sense that they can always be bartered and
may even be said to have a fixed value. From the Naron the Auen
procure skin garments and bags, for the making of which the former
438 are famous, giving them in return wooden pots, dishes, and spoons
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¹ D. F. Bleek, op. cit., 32-3; *idem*, "Bushmen of Central Angola," 108.

² Passarge, "Das Okawangosumpfgebiet," 701; *idem*, *Die Buschmänner*, 118-19; Trenk, "Buschleute der Namib," 166.

³ Passarge, *Die Buschmänner*, loc. cit.; Kaufmann, "Die Auen," 132-3; D. F. Bleek, *Naron*, 37-8.